

OIP
   
 APR 21 2003

Figure 1A

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 121 tgatcctacgaaaaagaggtaattggatactggcggcaattcgcctggcgtccggacctgat  
                                   M D T G G N S L A S G P D 13  
 181 ggtgtgaagaggaaggtttgtttatttctatgacccctgaggtcggcaattactactatggc  
           G V K R K V Q Y F Y D P E V G N Y Y Y G 33  
 241 caaggtcctccatgaagccccatcgcctccgcatgacccatgccctcctcctcctactac  
           Q G H P M K P H R I R M T H A L L A H Y 53  
 301 ggtctccttcagcatatgcaggtttctcaagcccttccctccccgcgaacgtatctctgc  
           G L L Q H M Q V L K P F P A R E R D L C 73  
 361 cgtttccacgcgcgacgactatgctctttttctccacagcattacccctgaaacccagcaa  
           R F H A D D Y V S F L R S I T P E T Q Q 93  
 421 gatcagattcgcgaacttaagcgtttcaatggttggtgaagactgtcccgcttttgacggc  
           D Q I R Q L K R F N V G E D C P V F D G 113  
 481 ctttattccttttgccagacctatgctggaggatctggttggtggctctgtcaagcttaac  
           L Y S F C Q T Y A G G S V G G S V K L N 133  
 541 cacggcctctgcgatattgccatcaactgggctgggtggtctccatcacgctaagaagtgc  
           H G L C D I A I N W A G G L H H A K K C 153  
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           E A S G F C Y V N D I V L A I L E L K 173  
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           Q H E R V L Y V D I D I H H G D G V E E 193  
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           A F Y A T D R V M T V S F H K F G D Y F 213  
 781 cccggtacagggtcacattcaggatataaggttatggtagcggaaagtactattctctcaat  
           P G T G H I Q D I G Y G S G K Y Y S L N 233  
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           V P L D D G I D D E S Y H L L F K P I M 253  
 901 gggaaagtattggaattttccgaccaggggctgtggtattgcaatgtggtgctgactcc  
           G K V M E I F R P G A V V L Q C G A D S 273  
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           L S G D R L G C F N L S I K G H A E C V 293  
 1021 aaatttatgagatcgttcaatgttccccctactgctcttgggtgggtgggtggttacactatc  
           K F M R S F N V P L L L G G G G Y T I 313  
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           R N V A R C W C Y E T G V A L G V E V E 333  
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           D K M P E H E Y Y E Y F G P D Y T L H V 353  
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           A P S N M E N K N S R Q M L E E I R N D 373  
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           L L H N L S K L Q H A P S V P F Q E R P 393  
 1321 cctgatacagagactcccgaggttgatgaagaccaagaagatggggataaaagatgggat  
           P D T E T P E V D E D Q E D G D K R W D 413  
 1381 cccgattcagacatggatggtgatgatgacgtaaacctataaccaagcagagtaaaaaga  
           P D S D M D V D D D R K P I P S R V K R 433  
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           E A V E P D T K D K D G L K G I M E R G 453  
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           K G C E V E V D E S G S T K V T G V N P 473  
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           E Q A F P P K T \* 501  
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 1801 atgaaa



Figure 1B

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121 atggaggcagacgaaagcggcatctctctgccgtcgggacccgacggacgtaagcggcga  
M E A D E S G I S L P S G P D G R K R R 20  
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V S Y F Y E P T I G D Y Y Y G Q G H P M 40  
241 aagcctcaccggatccgtatgggtcctatagcctaatacattcactatcacctccaccgtcgc  
K P H R I R M A H S L I I H Y H L H R R 60  
301 tttagaaatcagtcgccctagcctcgtcgaacgcctccgatatcggccgattccattcgcgcg  
L E I S R P S L A D A S D I G R F H S P 80  
361 gagtatgttgacttctcgtctccgttttcgcgcggaatctatgggcgatccttccgctgca  
E Y V D F L A S V S P E S M G D P S A A 100  
421 cgaaacctaaggcgattcaatgtcgggtgaggattgtcctgtcttcgacggactttttgat  
R N L R R F N V G E D C P V F D G L F D 120  
481 ttttgccgtgcttccgcgggaggttctattggtgctgccgtcaaattaaacagacaggac  
F C R A S A G G S I G A A V K L N R Q D 140  
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A D I A I N W G G G L H H A K K S E A S 160  
601 gggttttgctatgtaaacgacatcgtgctagggttcttgaggttgctcaagatgtttaag  
G F C Y V N D I V L G I L E L L K M F K 180  
661 cgggttctctacatagatattgatgtccaccatggagatggagtggaagaagcggttttac  
R V L Y I D I D V H H G D G V E E A F Y 200  
721 accactgatagagttatgactgtttctttccacaaatttggggactttttcccaggaact  
T T D R V M T V S F H K F G D F F P G T 220  
781 ggtcacataagagatggttggcgctgaaaaagggaataactatgctctaaatgttccacta  
G H I R D V G A E K G K Y Y A L N V P L 240  
841 aacgatggttatggacgatgaaagtttccgcagcttgttttagacctttatccagaaggtt  
N D G M D D E S F R S L F R P L I Q K V 260  
901 atggaagtgtatcagccagaggcagttgttcttcagtggtggtgactccttaagtgg  
M E V Y Q P E A V V L Q C G A D S L S G 280  
961 gatcgggttgggttgcctcaacttatcagtcagggtcacgctgattgccttcgggttctta  
D R L G C F N L S V K G H A D C L R F L 300  
1021 agatcttacaacgttccctctcatggtgttgggtgggtgaagggtatactattcgaaatgtt  
R S Y N V P L M V L G G E G Y T I R N V 320  
1081 gcccggtgctggtgttatgagactgcagttgctgttggagtagagccggacacaaactc  
A R C W C Y E T A V A V G V E P D N K L 340  
1021 ccttacaatgagtattttgagtatttcggcccagattatacgcttcatgtcgaccccaagt  
P Y N E Y F F E Y F G P D Y T L H V D P S 360  
1201 cctatggagaatttaaacacgccccaaagatatggagaggataaggaacacgttgctggaa  
P M E N L N T P K D M E R I R N T L L E 380  
1261 caactttcgggactaatacacgcaccttagcgtccagtttcagcacacaccaccagtcaat  
Q L S G L I H A P S V Q F Q H T P P V N 400  
1321 cgagttttggacgagccggaagatgacatggagacaagacaaaacctcgcatctggagt  
R V L D E P E D D M E T R P K P R I W S 420  
1381 ggaactgcgacttatgaatcagacagtgacgatgatgataaacctcttcatggttactca  
G T A T Y E S D S D D D D D K P L H G Y S 440  
1441 tgtcgtggtggcgcaactacggacagggactctaccggtgaagatgaaatggatgacgat  
C R G G A T T D R D S T G E D E M D D D 460  
1501 aaccagagaccagacgtgaatcctccatcgtctttaaaccagcttgatggtttggtgtctc  
N P E P D V N P P S S \* 471  
1561 ttttgccatatgataatgtcggcagatttaagaaacaagttaggggaatgaatgattctt  
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1681 caactgactagtatttttggcccaagtttagaaaatcagaatatgtgaaaaaaaaaaaaaaaa  
1741 aaaaaaaaaaggcgccgctctagaggatccaagcttacgtacgcgtgcacgacgtcat

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## Figure 2A

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M E F W 4  
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G I E V K S G K P V T V T P E E G I L I 24  
121 caccgtttctcaggcatcgcttggagaatgtaaaaacaagaaggagagagtttggtgccttta  
H V S Q A S L G E C K N K K G E F V P L 44  
181 catgtaaagggttgggaaccagaacttgggttctgggaactctatcgactgagaacatccct  
H V K V G N Q N L V L G T L S T E N I P 64  
241 cagcttttctgtgatttgggtattcgacaaggagtttgagctttctcacacttggggaaaa  
Q L F C D L V F D K E F E L S H T W G K 84  
301 ggaagtgtttatcttgggtatgatacaaaaactcccaacattgagccacaaggctattctgag  
G S V Y F V G Y K T P N I E P Q G Y S E 104  
361 gaaqaagaggaagaagaggaagaagttcctgctgggaatgctgccaaggctgtagctaaa  
E E E E E E E V P A G N A A K A V A K 124  
421 ccaaaggctaagcctgcagaagtgaagccagctgttgatgatgaagaggatgagttctgat  
P K A K P A E V K P A V D D E E D E S D 144  
481 tctgacggaatggatgaagatgattctgatggtgaggattctgaggaagaagagcctaca  
S D G M D E D D S D G E D S E E E E P T 164  
541 cctaagaagcctgcataagcaagaagagagctaataaactaccctaagcacctgtg  
P K K P A S S K K R A N E T T P K A P V 184  
601 tcagcaaaagaaggcgaaagtagcagttactcctcagaaaaacagatgagaagaagaaggg  
S A K K A K V A V T P Q K T D E K K K G 204  
661 ggaaaggctgcaaaccagagcccaaaagtcggccagtcgaagtctcatgtggttcatgcaag  
G K A A N Q S P K S A S Q V S C G S C K 224  
721 aagactttcaactcaggggaatgcacttgagtctcacaacaaggccaagcacgctgctgcc  
K T F N S G N A L E S H N K A K H A A A 244  
781 aagtgaagtgggtttcttattagagcttgtgatttctatggaattttgcctgtagtcttta  
K \* 245  
841 tgaaaccttcggattttcttatattttcttttgataacaagagtccttaatgaaagagagc  
cagttggagtccttaaaaaaaaaaaaaaaaaaggcgccgc



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Figure 3

AtRPD3A	MD-----TGG	NSLAS--GPDG	VKRKVCYFYD	PEVGNYYYGQ	GHPMKPHRIR	44
AtRPD3B	MEADESGI--	--SLPS--GPDG	PKRRVSYFYE	PTIGDYYYGQ	GHPMKPHRIR	47
ZmRPD3	MDPSSAGSGG	NSLPSSVGPDG	QKRRVCYFYD	PDVGNYYYGQ	GHPMKPHRIR	50
RPD3	MVYEATPFD-	---PITVKPS	DKRRVAYFYD	ADVGNYYAYGA	GHPMKPHRIR	46
AtRPD3A	MTHALLAHYG	LIQHMQVLKP	FPARERDLCR	FHADDYVSFL	RSITPETQQD	94
AtRPD3B	MAHSLIHHYH	LHRRLEISR	SLADASDIGR	FHSPEYVDFL	ASVSPESMGD	97
ZmRPD3	MTHSLLARYG	LINQMQLVYR	NPARERELCR	FHAEYINFL	RSVTPETQQD	100
RPD3	MAHSLIMNYG	LYKKMEIYRA	KPATKQEMCQ	FHTDEYIDFL	SRVTPDNLEM	96
AtRPD3A	QT--RQLKRF	NVGEDCPVFD	GLYSFCQTYA	GGSVGGSVKL	NHGLCDIATN	142
AtRPD3B	PSAARNLRRE	NVGEDCPVFD	GLFDLCRASA	GGSIGAAYKI	NRQDADIATN	147
ZmRPD3	QT--RLKRF	NVGEDCPVLD	GLYSFCQTYA	GASVGGAVKF	NHGH-DIATN	147
RPD3	--FKRESVKF	NVGEDCPVFD	GLYEYCSISG	GGSMEGAARL	NRGKCDVAVN	144
AtRPD3A	WAGGLHHAKK	CEASGFCYVN	DIVLAILELL	KQHERVLYVD	IDIHHDG DVE	192
AtRPD3B	WGGGLHHAKK	SEASGFCYVN	DIVLGILELL	KMFKRVLVID	IDVHHGDGVE	197
ZmRPD3	WSGGLHHAKK	CEASGFCYVN	DIVLAILELL	KHHERVLYVD	IDIHHDG DVE	197
RPD3	YAGGLHHAKK	SEASGFCYLN	DIVLGI IELL	RYHPRVLYTD	IDVHHGDGVE	194
	**	*		*	**	
AtRPD3A	EAFYATDRVM	TVSFHKFGDY	FPGTGHIQDI	GYGSGKYYSL	NVPLDDGIDD	242
AtRPD3B	EAFYTTDRVM	TVSFHKFGDF	FPGTGHIRDV	GAEKKGKYAL	NVPLNDGMD	247
ZmRPD3	EAFYTTDRVM	TVSFHKFGDY	FPGTGDIRDI	GHSKKGKYSL	NVPLDDGIDD	247
RPD3	EAFYTTDRVM	TCSEHKYGEF	FPGTGELRDI	GVGAGKNYAV	NVPLRDGIDD	244
	*	* *				
AtRPD3A	ESYHLLFKPI	MGKVMEIFRP	GAVVLQCGAD	SLSGDRLGCF	NLSIKGHAEC	292
AtRPD3B	ESFRSLFRPL	IQKVMEVYQP	EAVVLQCGAD	SLSGDRLGCF	NLSVKGHADC	297
ZmRPD3	ESYQSLFKPI	MGKVMEVFRP	GAVVLQCGAD	SLSGDRLGCF	NLSIKGHAEC	297
RPD3	ATYRSVFEPV	IKKIMEFWYQP	SAVVLQCGGD	SLSGDRLGCF	NLSMEGHANC	294
AtRPD3A	VKFMRSFNVP	LLLGGGGGYT	IRNVARCWCY	ETGVALGVEV	EDKMPHEEY	342
AtRPD3B	LRFLRSYNVP	LMVLGCGEY	IRNVARCWCY	ETAVAVGVEP	DNKLPYNEY	347
ZmRPD3	VRYMRSFNVP	LLLGGGGGYT	IRNVARCWCY	ETGVALGQEP	EDKMPVNEY	347
RPD3	VNYVKSEGI	MMVVGGGGYT	MRNVARTWCF	ETGLLNNVVL	DKDLPYNEY	344
AtRPD3A	EYFGPDYTLH	VAPSNMENKN	SRQMLEEIRN	DLIHNLSKIQ	HAPSVPFQER	392
AtRPD3B	EYFGPDYTLH	VDPSNMENKN	TPKDMERIRN	TLLHNLSGLI	HAPSVQFOHT	397
ZmRPD3	EYFGPDYTLH	VAPSNMENKN	TRQQLDDIRS	----KLSKLR	HAPSVHFQER	393
RPD3	EYYGPDYKLS	VRPSNMENVN	TPEYLDKVM	NIFANLENTK	YAPSVQLNHT	394
AtRPD3A	PPDTETPEVD	EDQEDGDKRW	DPDSMDVDD	D-----R	KPIPSRVKRE	434
AtRPD3B	PPVNRVLD--	-----	EPEDDME---	-----TR	KE---RIWSG	421
ZmRPD3	VPDTEIPEQD	EDQDDPDERH	DPDSMEVDD	HKAVEESSRR	SILGIKIKRE	443
RPD3	P-----	-----R-	DAEDLG DVEE	DSA-----	-----	409
AtRPD3A	AVEPDTKDKD	GLKGIMERGK	GCEVEVDES	STKVT---GV	NPVGVEEAS-	480
AtRPD3B	TATYESDSD	DDKPL--HGY	SC-----	--RGATTDR	DSTGEDEMDD	459
ZmRPD3	FGENATRVQD	GGRVASEH-R	GLEPMAEDIG	SSKQAPQADA	SAMAI DEPSN	492
RPD3	-----	-----	-----	-----	-----EAKD	413
AtRPD3A	VKMEEEGTNK	GGAEQAEPK	T			501
AtRPD3B	DNPEPDVNP-	-----ESS				471
ZmRPD3	VKNEPESSTK	LQGQAAAYHK	P			513
RPD3	TKGGSQYARD	LHVEHDNEFY				433

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# Figure 4

AtHD2A	MEFWGIEVFS	TKPVTVTPEE	GILIEIVSQAS	LGECKNKEGE	FVPLHVKVGN	50
AtHD2B	MEFWGVATTE	KNATEVTPPE	DSLVIHISQAS	L-DITVFSGE	SVVLSTTVGG	49
ZmHD2	MEFWGLEVFF	GSTVECEFGY	GFVLHLISQAA	LGES--KFS	NALMYVHIDD	48
AtHD2A	QNLVLSTLST	ENIPQLFCDI	VFDKEFELSH	HWGKGSVYEV	GYKTPNIEPQ	100
AtHD2B	AKLVIGTISQ	DEFPQISFDL	VFDKEFELSH	SGTEANVHFI	GYKSPNIEQD	99
ZmHD2	QKLAISTLSV	DEFNHIOFDL	IEDKEFELSH	TSKTTSVFET	GYEVEQPFEE	98
AtHD2A	GYSEEEEEEE	EEVVPAGNAA	-----	---KAVAKPF	AKPAEVKPAV	136
AtHD2B	DFTSSQDEEV	PEAVPAPAPT	AVTANGNAGA	AVVEADTKPF	AKPAEVKPAE	149
ZmHD2	DEMDLDSIDE	DEELNVP---	VVKENGKADE	KKQESQERAV	AAFSKSSIDS	145
AtHD2A	----DDEEDE	SPS-E-----	-----GMD	EDDSGDESE	EEE-----	162
AtHD2B	EKPESDEEDE	SDECESEED	--DDSEKGMD	VDEDDSDDDF	EEDSEDEEEE	197
ZmHD2	KKSKDDDDSD	EDETEDSDED	ETDDSDDEGLS	SEEGDDSSD	EDDTSDEEEE	195
AtHD2A	PTP--KKFAS	-SKKRANETI	PEAPVSAFPA	KVAV----TE	QKTDEKK---	202
AtHD2B	ETP--KKPEP	INFKRPNESV	SKTEVSGKFA	NPAAAPASTP	QF-----TEK	240
ZmHD2	DTPTPKKPEV	GKRPPESSV	LKTPLSDKFA	KVATPSS---	QKTGGK----	238
AtHD2A	-KGGKA----	-----	-----AN	QSPKASQVS	CGSC-KKTFN	229
AtHD2B	KKGG--HTAT	PHPAF-----	KGGKSPVNAN	QSPESGGQSS	GNNNNKKPFN	283
ZmHD2	-KGAAVHVAT	PHPAFGKTIV	NNDKSVKSPK	SAPESGGSV	CKPCSK-SFI	286
AtHD2A	SGNALE-SHN	KAKHAAAK				245
AtHD2B	SGKQFGGSNN	EGSNKGKKGK	RA			305
ZmHD2	SETALQA-HS	RAFMGASESQ	VQ			307



FIGURE 5

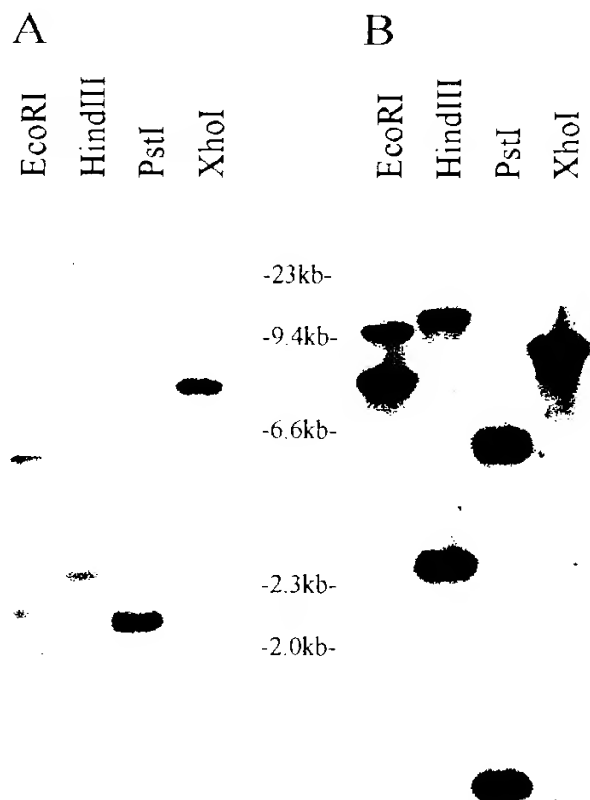
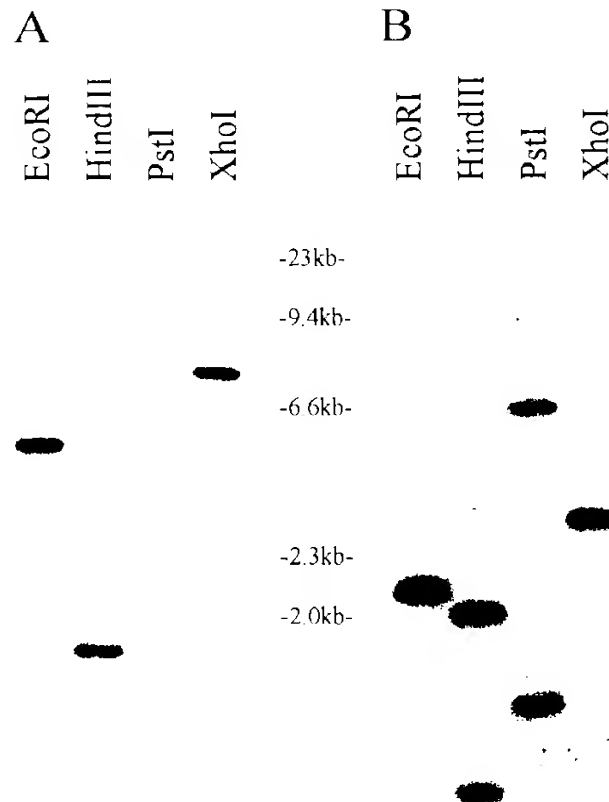




FIGURE 6







**FIGURE 7**

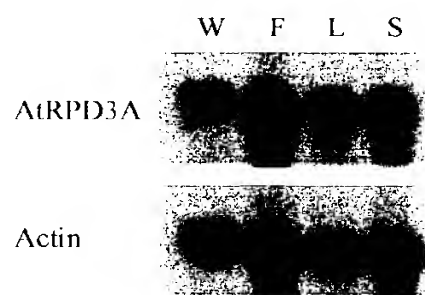
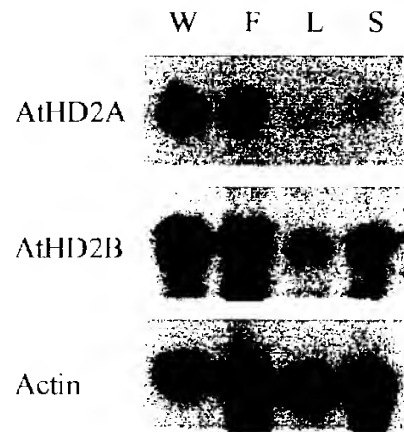




FIGURE 8





**Figure 9**

**A**

**Effector Plasmids**

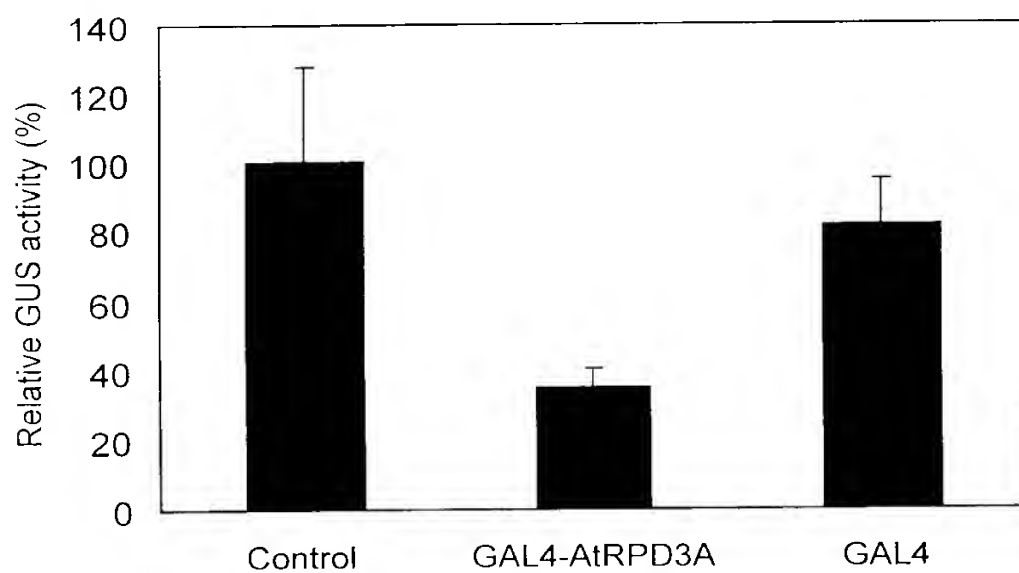
**GAL4-AtRPD3A** — [tCUP] — [GAL4BD] — [AtRPD3A] — [Nos-T]

**GAL4** — [tCUP] — [GAL4BD] — [Nos-T]

**Reporter Plasmid**

**UAS<sub>GAL4</sub>-tCUP-GUS** — [UAS<sub>GAL4</sub>] — [-394-tCUP] — [GUS] — [Nos-T]

**B**

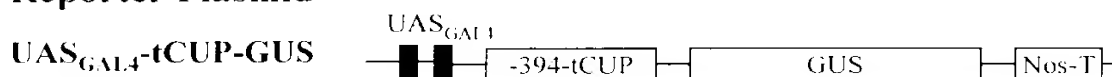




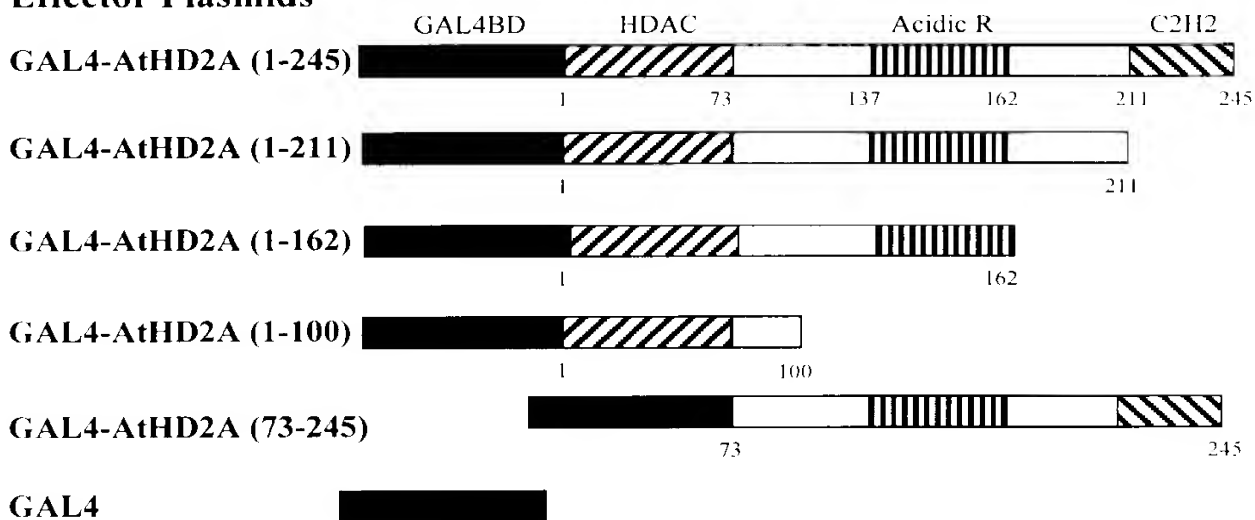
**Figure 10**

**A**

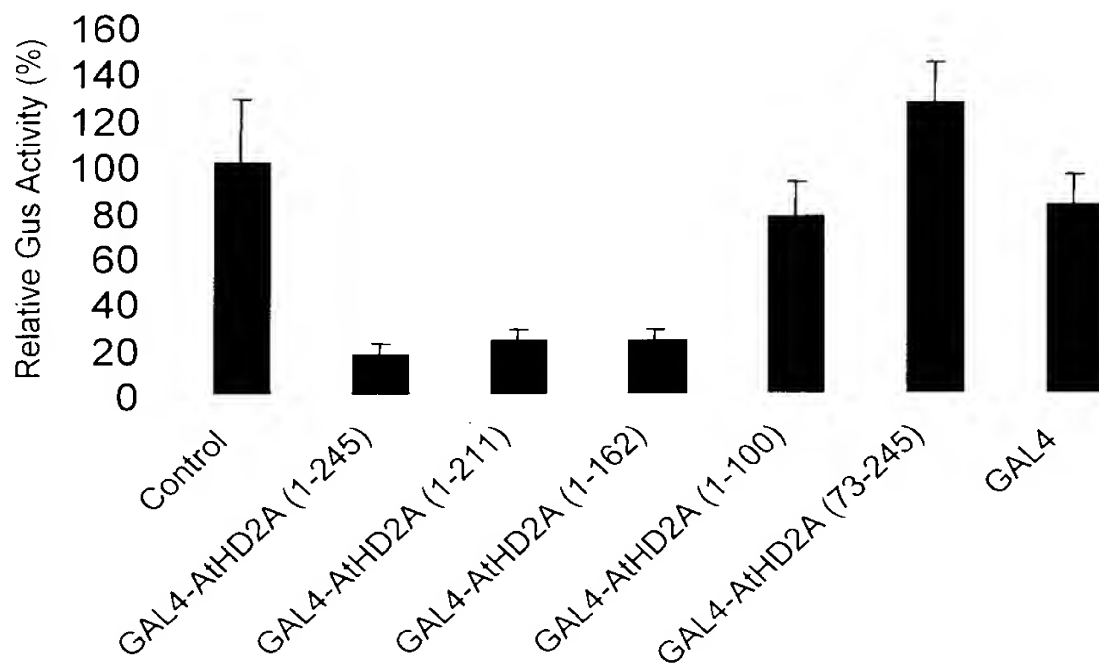
**Reporter Plasmid**



**Effector Plasmids**



**B**

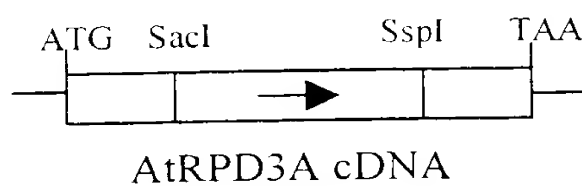




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## FIGURE 11

**A**



**B**

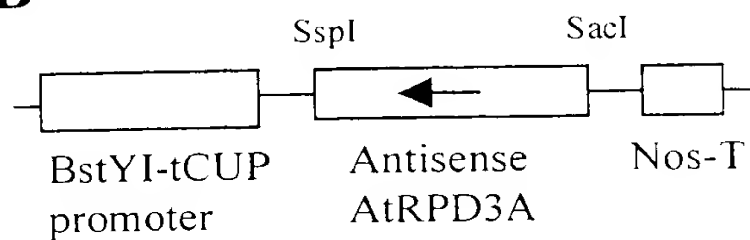




FIGURE 12

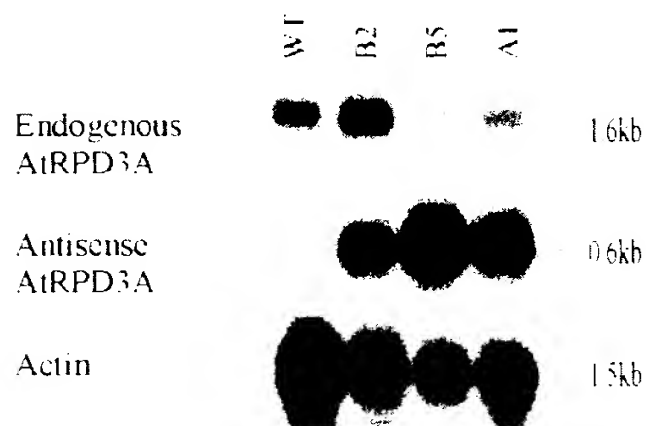




FIGURE 13

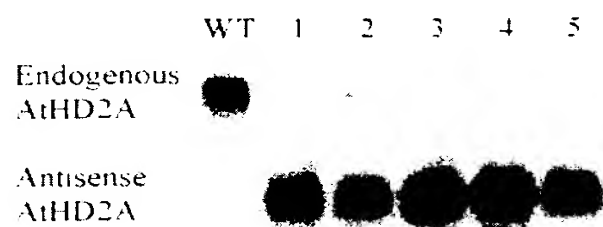
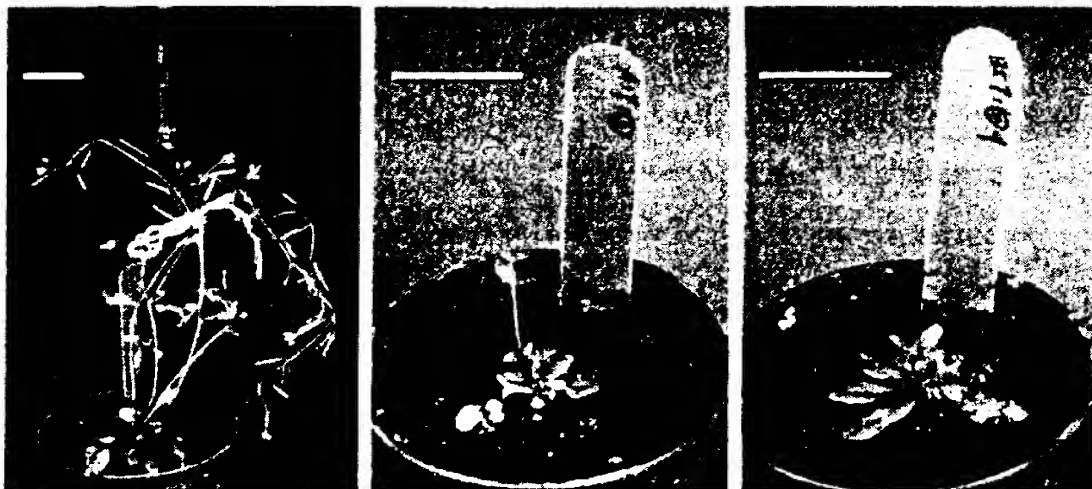


FIGURE 14





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FIGURE 15

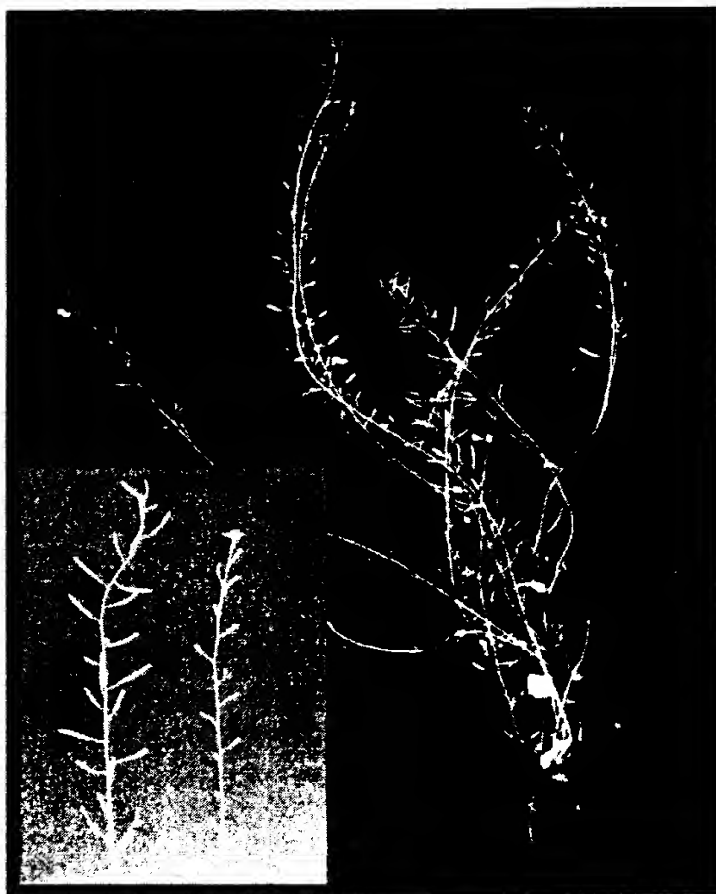
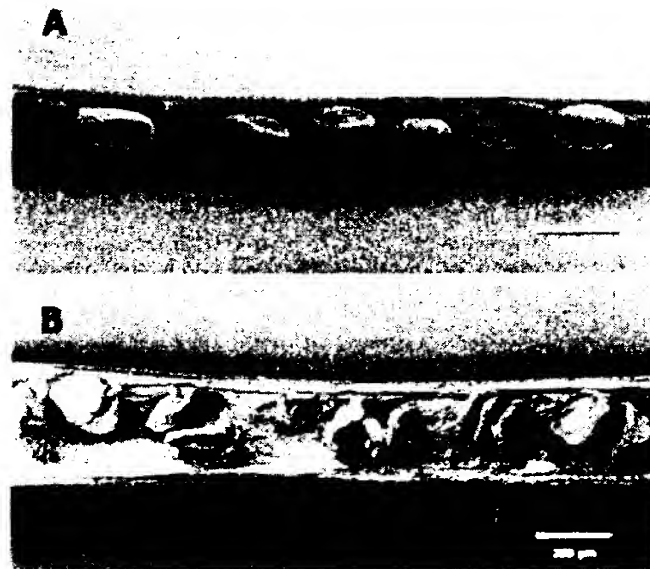


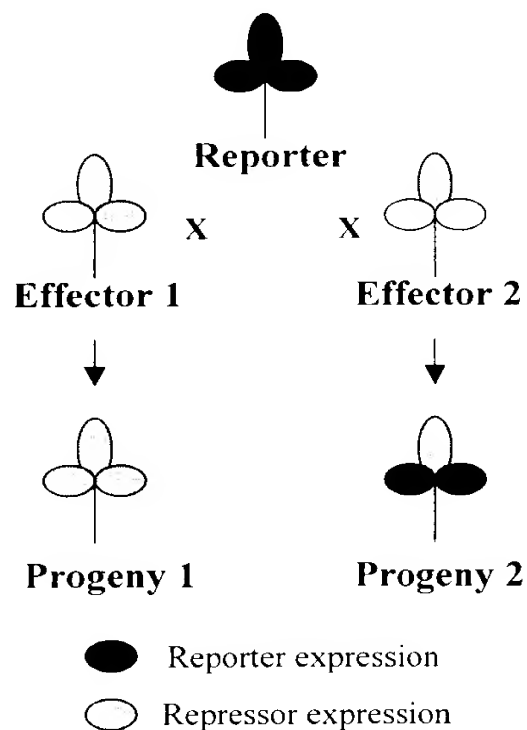


FIGURE 16





**A**



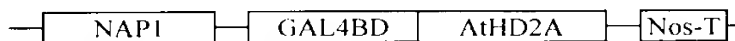
**B**

### Effector Plasmids

#### tCUP-GAL4/AtHD2A (Effector 1)

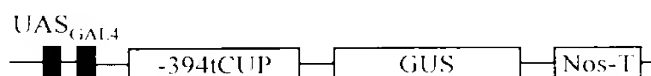


#### NAP1-GAL4/AtHD2A (Effector 2)



### Reporter Plasmid

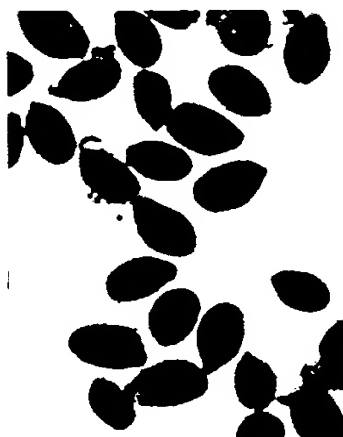
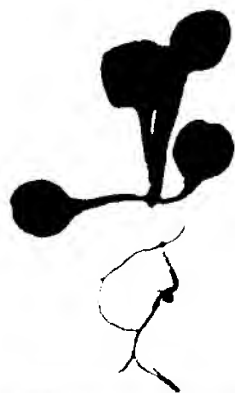
#### UAS<sub>GAL4</sub>-tCUP-GUS (or UAS<sub>GAL4</sub>-35S-GUS)



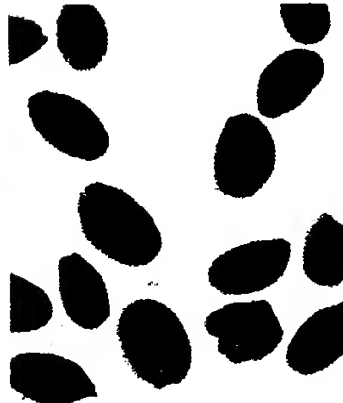
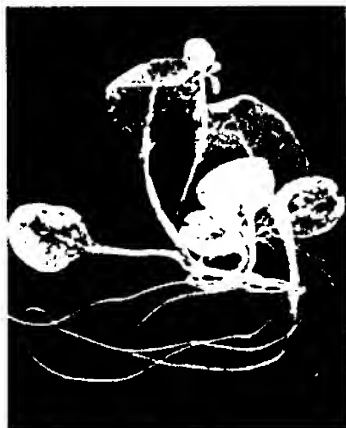
**Figure 17**

APR 21 2003

A



B



C

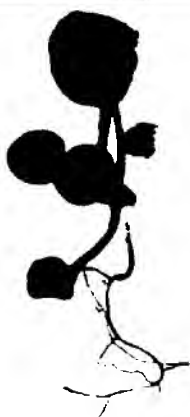


Figure 18

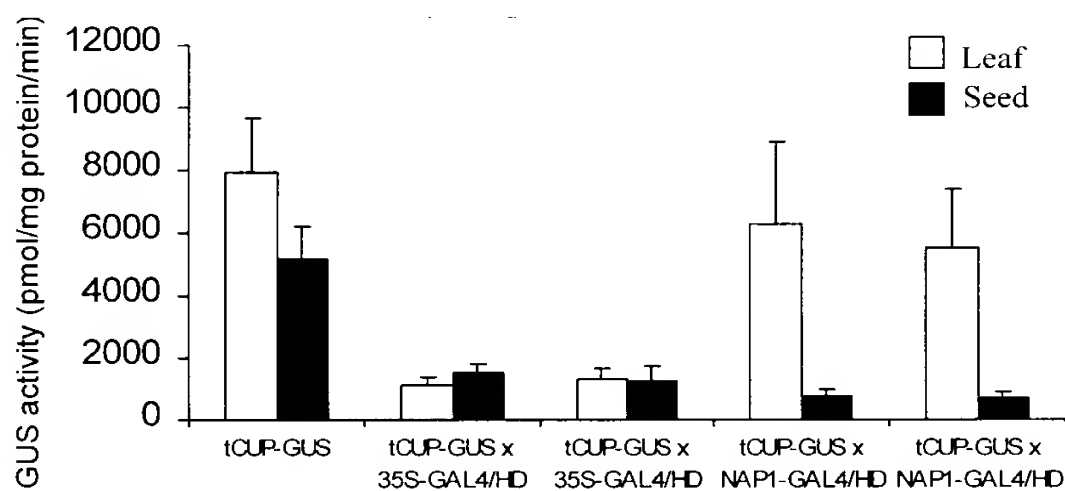


Figure 19A

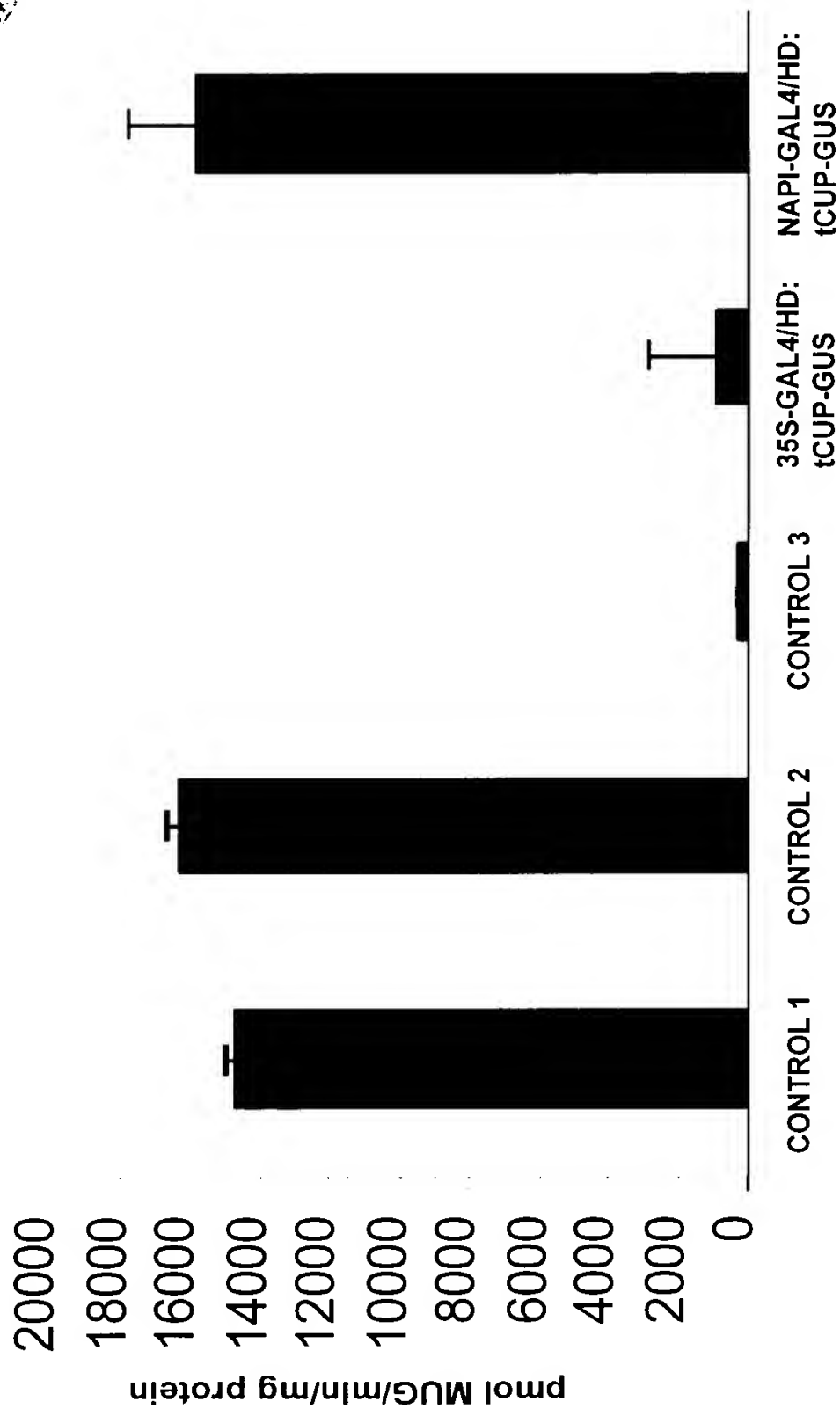


Figure 19B

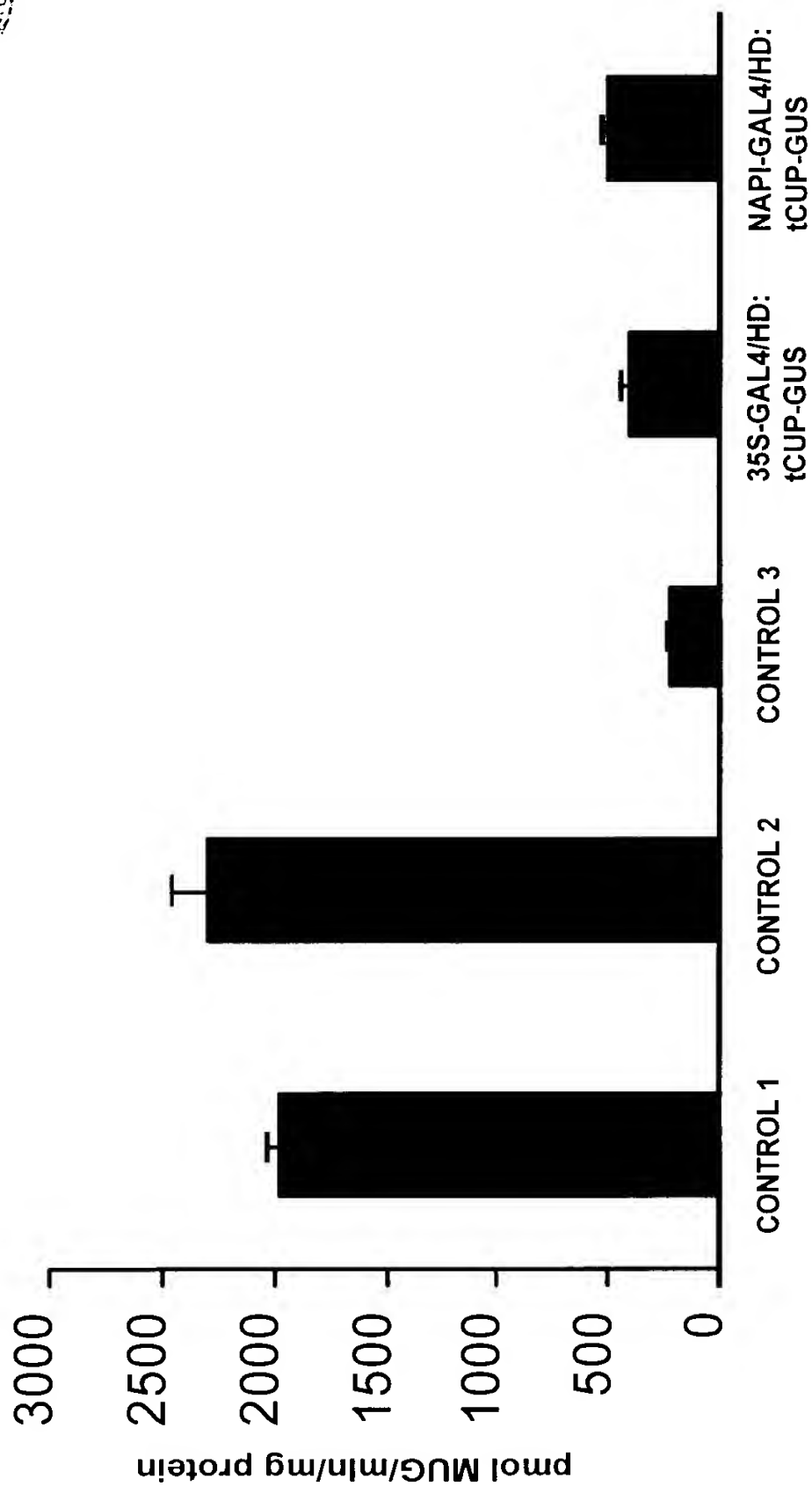
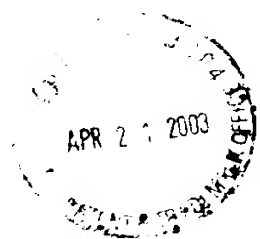
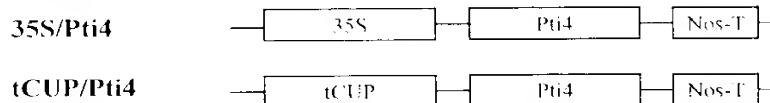


Figure 19C

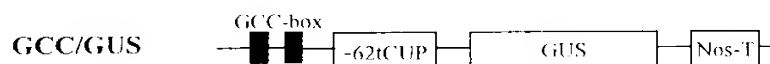


**A**

**Effector Plasmids**



**Reporter Plasmid**



**B**

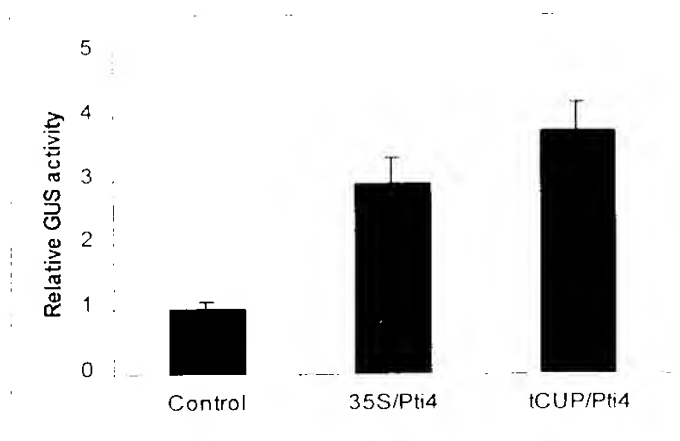


Figure 20



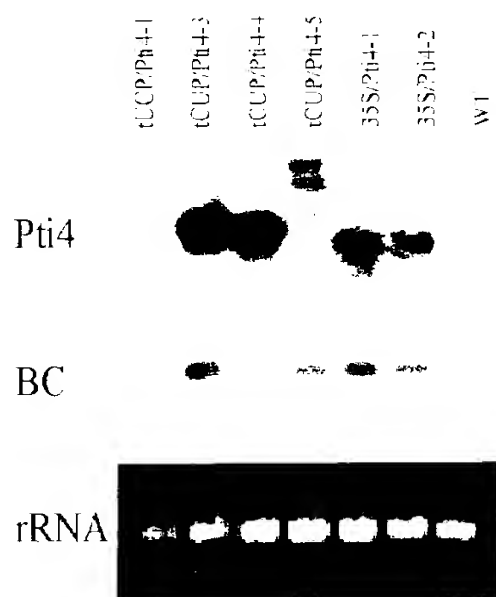


Figure 21

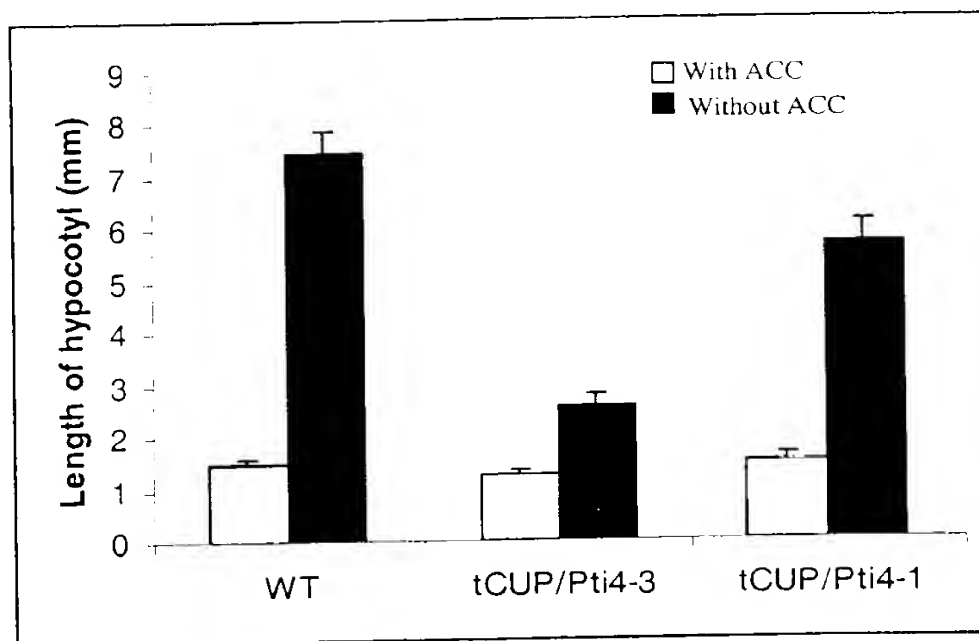


Figure 22

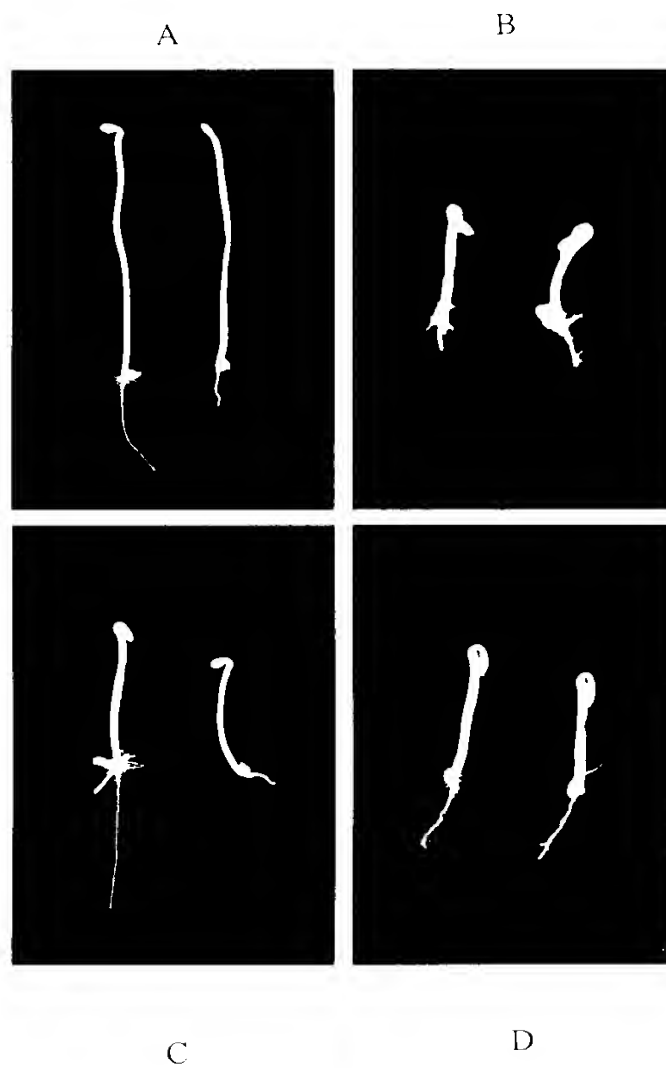


Figure 23

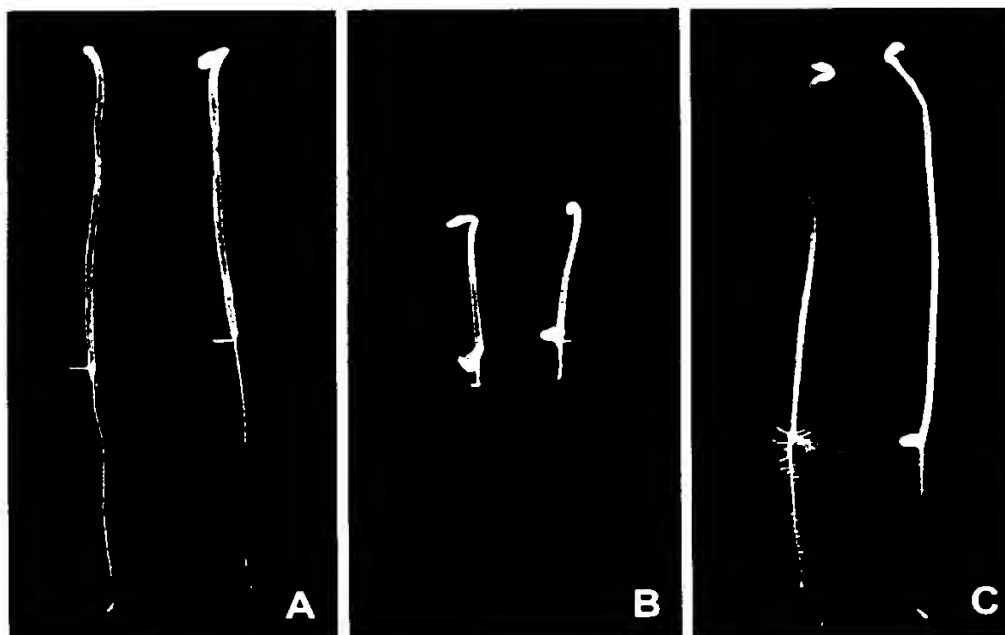


Figure 24